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the reference dot detection section 14A detects a reference dot from the binarized code information. As the reference dot to be described later, for example, a pattern dot 278 may be employed. The dot area measuring section 14B measures the area of the reference dot detected by a reference dot detection section 14A. The threshold value modifying section 14C modifies the threshold value for use in the binarizing process in such a manner that the area measured by the dot area measuring section 14B approaches a predetermined target value. The threshold value determining section 14D binarizes the image signal with the threshold value modified by the threshold value modifying section 14C, and then transmits the obtained binarized data to the information reproducing section 16.--

Please amend claims 1-3, 5, 7-13, 16, 19-22 and 24, and add claims 25-29, as follows:

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1. (Amended) An information reproducing system comprising:
code reading means for reading a [desired] dot code from an information recording medium on which multimedia information including at least any one of audio information, image information and digital code data has been recorded in the form of a dot code which can optically be read, to provide an image signal corresponding to an image formed from said dot code that has been read;

binarizing means for generating binarized data from [an]
10 said image signal [corresponding to the dot code read by said
code reading means]; and

information reproducing means for restoring said binarized
data generated by said binarizing means to [original] the
multimedia information [to reproduce] and for reproducing the
15 multimedia information, wherein

said binarizing means includes:

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reference dot detection means [which binarizes the image
signal with a predetermined threshold value prior to generating
binarized data so as to detect] for detecting a reference dot
20 from [the] said binarized [code image] data by use of a
predetermined threshold value;

dot area measuring means for measuring [the] an area of the
reference dot detected by said reference dot detection means; and

threshold value modifying means for [modifying the]
25 obtaining a modified threshold value derived in such a manner
that the area measured by said dot area measuring means
approaches a predetermined target value[;and],

[threshold value determining means for binarizing the image
signal with the threshold value modified by said threshold value
30 modifying means.]

wherein said binarizing means generates said binarized data
from said image signal based on said modified threshold value.

2. (Amended) An information reproducing system according to claim 1, wherein said binarizing means binarizes the image signal formed from said dot code that has been read by said code reading means in [one of field and frame] units of one field or units of one frame.

3. (Amended) An information reproducing system according to claim 1, wherein

said code reading means successively reads [the code image] said dot code, and

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said binarizing means [modifies the threshold value of the successive image signals read by said reading means in one of the previous field and previous frame in accordance with the area of the detected reference dot so as to binarize the one of the present field and present frame with] detects, with said reference dot detection means, the reference dot from binarized data generated from a particular image signal corresponding to an image formed from said dot code of an immediately preceding field or frame, said particular image signal having been binarized based on said predetermined threshold value, and wherein said binarizing means further measures the area of said reference dot to obtain an area measurement, modifies the predetermined threshold value, with said threshold value modifying means, based

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on said area measurement, to derive said modified threshold value, and binarizes a current field or frame based on the modified threshold value.

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5. (Amended) An information reproducing system according to claim 1, wherein the dot code recorded on said information recording medium includes a data code corresponding to the multimedia information and a pattern code for determining the position at which the data code is read, and
the reference dot is at least a portion of the pattern code.

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7. (Amended) An information reproducing system according to claim 1, wherein

said reference dot detection means detects a plurality of said reference dots; and

said dot area measuring means has average area calculating means for calculating [the] an average area from areas of the detected [plural] plurality of said reference dots.

8. (Amended) An information reproducing system according to claim 7, wherein

said dot area measuring means has dot selection means for inhibiting input of the area of the reference dot into said average area calculating means in a case where the measured area

of each reference dot is [larger than] outside of a predetermined range.

9. (Amended) An information reproducing system according to claim 1, wherein

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said threshold value modifying means has threshold value holding means for (i) counting the number of reference dots detected by said reference dot detection means, [determines] (ii) determining whether or not the counted number of the reference dots satisfies a predetermined number and [inhibits] (iii) inhibiting modification of the threshold value in a case where the counted number of reference dots is less than the predetermined number.

10. (Amended) An information reproducing system according to claim 1, wherein

said threshold value modifying means includes;
peak value detection means for detecting [the] a maximum value and [the] a minimum value of [the] a luminance from a [predetermined] detection region defined on the image formed from the dot code read by said code reading means;

interior division ratio modifying means for modifying [the] an interior division ratio in accordance with [the] an amount of modification of the interior division ratio calculated from [the] a difference between the area measured by said dot area measuring

means and the predetermined target value; and

threshold value calculating means [which divides the value] for multiplying a difference between the maximum and minimum values detected by said peak value detection means with the interior division ratio modified by said interior division ratio modifying means and adding the minimum value so as to [calculate the] obtain said modified threshold value.

11. (Amended) An information reproducing system according to claim 10, wherein said peak value detection means [interrupts following processes for] terminates subsequent processing of the image signal for a [subject] current frame in one of a case where the detected minimum value is larger than a predetermined first threshold value and a case where the detected maximum value is smaller than a predetermined second threshold value.

12. (Amended) An information reproducing system according to claim 10, wherein said peak value detection means has selective average calculating means for calculating [the] an absolute value of [the] a difference between luminance values of pixels that are positioned adjacent to a pixel of interest and for calculating [the] an average value of the luminance values of adjacent pixels only when [a result of the calculation] said absolute value is smaller than a predetermined threshold value

[so that], wherein said peak value detection means thereby
10 detects the peak values [are detected] from the
calculated average value of the [calculated] luminance values.

13. (Amended) An information reproducing system according
to claim 10, wherein said interior division ratio modifying means
15 has an interior division ratio modification amount table for
determining [the] an amount of modification of the interior
division ratio in accordance with [the] a relationship between
dot area S and target value S_t [so as to determine] and
20 determines an amount Δk of modification of the interior division
ratio from the measured dot area and the predetermined target
value in accordance with said interior division ratio
modification amount table.

16. (Amended) An information reproducing system according
to claim 10, wherein said interior division ratio modifying means
25 changes the interior division ratio in a stepped manner and
[provides] allows an interior division ratio modifying operation
30 to have a hysteresis characteristic.

19. (Amended) An information reproducing system according
to claim 10, wherein

said code reading means successively reads [the code images]
35 said dot code,

said interior division ratio modifying means modifies the
interior division ratio to one of a field and a frame which
satisfies a predetermined condition for the successive image
signals formed from said dot code read by said code reading means
and holds the modified interior division ratio for one of the
following field and frame.

20. (Amended) An information reproducing system according
to claim 1, wherein

the dot code recorded on said information recording medium
has an attitude dot disposed in a predetermined [region] area
adjacent to [the] a reading start end and including information
about said information recording medium for determining the
threshold value required by said binarizing means, and

said binarizing means includes:

attitude dot detection means for detecting the attitude dot;

attitude reading means [which binarizes the image signals
read by said reading means in one of field and frame units so as
to read] for reading information relating said information
recording medium from the attitude dot [of said binarized image]
detected by said attitude dot detection means in the image signal
formed from the dot code read by said code reading means and
binarized based on the threshold value determined in accordance
with said attitude dot; and

attitude storage means for storing information read by said

attitude reading means and applying information to each of
60 following images.

55 B1 > 21. (Amended) An information recording medium for use in an
information reproducing system having code reading means for
reading a [desired] dot code from an information recording medium
65 on which multimedia information including at least any one of
audio information, image information and digital code data has
Ac been recorded in the form of a dot code which can optically be
read; binarizing means for generating binarized data from an
image signal corresponding to the dot code read by said code
70 reading means; and information reproducing means for restoring
binarized data generated by said binarizing means to original
multimedia information to reproduce multimedia information, said
information recording medium comprising:

75 data dots which correspond to [the] contents of
the multimedia information and which can optically be read; and
a reference dot arranged to be [detected] binarized by said
binarizing means and serving as a reference when the threshold
value is modified to allow the area of the [detected] binarized
dot to approach a predetermined target value.

80 22. (Amended) An information recording medium according to
claim 21, wherein a plurality of the reference dots are recorded
[in an image pickup region] on the information recording medium

85 in such a manner that said plurality of the reference dots can be
90 detected in an image pickup area of the code reading means when
the code reading means reads the dot code from the image pickup
area.

24. (Amended) An information recording apparatus for
90 recording multimedia information including at least any one of
audio information, image information and digital code data in the
form of a dot code which can optically be read, comprising:

input means for inputting information relating to said
information recording medium;

95 storage means for storing [the] a predetermined relationship
between the information relating to [a predetermined] the
information recording medium and one of [the] an area of the dot
[when data is recorded] and [the] a recording density when data
is recorded; and

100 recording means for reading a corresponding one of the dot
area and the recording density from said storage means in
accordance with the information that relates to said information
recording medium and which has been input by said input means
[and relating to said information recording medium so as] to
105 thereby record a dot code corresponding to multimedia information
in accordance with the one of the dot area and the recording
density.

25. An information reproducing system according to claim 1, wherein

said code reading means successively reads said dot code, and

5 said binarizing means detects, with said reference dot detection means, the reference dot from binarized data generated from a particular image signal corresponding to an image formed from said dot code of a current field or frame, said particular image signal having been binarized based on said predetermined threshold value, and wherein said binarizing means further
10 measures the area of said reference dot to obtain an area measurement, modifies the predetermined threshold value, with said threshold value modifying means, based on said area measurement, to derive said modified threshold value, and binarizes the current field or frame based on the modified threshold value.

15 26. An information reproducing system comprising:
20 code reading means for reading a dot code from an information recording medium on which multimedia information including at least any one of audio information, image information and digital code data has been recorded in the form of a dot code which can optically be read, to provide an image signal corresponding to an image formed from said dot code that

25 has been read;

binarizing means for generating binarized data from said image signal by use of a threshold value; and

information reproducing means for restoring said binarized data generated by said binarizing means to the multimedia information and for reproducing the multimedia information;

wherein said binarizing means modifies the threshold value based on a measurement of an area of a predetermined dot obtained from the binarized data generated from said image signal.

35 27. An information recording medium for use in an information reproducing system comprising:

A6 40 code reading means for reading a dot code from an information recording medium on which multimedia information including at least any one of audio information, image information and digital code data has been recorded in the form of a dot code which can optically be read;

binarizing means for generating binarized data, by use of a predetermined threshold value, from an image signal corresponding to an image of the dot code read by said code reading means; and

information reproducing means for restoring binarized data generated by said binarizing means to the multimedia information and for reproducing the multimedia information, said information recording medium comprising:

data dots which correspond to contents of